An Assessment of Project Management Maturity in Kazakhstan

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Abstract

For more than sixty years organizations have been using methods and tools of Project Management (PM) which, in the past two decades, has become a diverse field of management application with its own knowledge domain. The success of such PM mapping into an organizational strategy and competency is measured by PM Maturity (PMM). The PMM models often aim at providing a framework for improving an organization's business result by assessing the organization's strengths and weaknesses in PM. The past ten years has shown an increase in PMM research and practice in various developed and developing countries. Given such a comparatively established background of global PMM studies and applications, this study aims at exploring its status in emerging economies. From this perspective this research focuses on Kazakhstan.

With the purpose of investigating a current PMM status in Kazakhstan and filling a local maturity research gap, this work provides an empirical study on assessing PMM in the country. To achieve this aim, the paper first reviews some prominent maturity models and selects one for this study. Then, a questionnaire survey is conducted involving 22 local project managers from different industries in the country which represent a sample for the study. Third, after statistical analysis of the data, the research results are provided split into three streams on: revealing respondents' profile, discussing demand for project managers, and determining a PMM level in the country.

Overall, with the mean maturity level of 2.42 out of 5, the results show that PM tools and methods have not yet been used effectively in Kazakhstan. The results also suggest that PMM in Kazakhstani organizations is gradually moving from Level 2 to Level 3. This shows that the organizations ensure that each project is run with its own processes and procedures to a minimum specified management standard set in the organizations. However, it also implies that there is limited consistency or coordination between different projects. Finally, the study finds that, as PMM moves to Level 3, the organizations strive for having their own centrally controlled PM processes where all their individual projects would flex. All in all, the findings of the study add value to the existing PM body of knowledge in Kazakhstan and serve as a background asset to be used in facilitating the projectification of organizations in Kazakhstan.

Keywords: Emerging countries; Kazakhstan; Maturity models; Project management maturity; P3M3®.

Introduction

For more than sixty years organizations have been using methods and tools of Project Management (PM) which, in the past two decades, has become a diverse field of management application with its own knowledge domain. As a methodology to manage programs, portfolios, and projects, PM is recognized throughout the world and is used in government, commercial and

not-for-profit sectors. To achieve such a success PM research, knowledge, and applications have evolved from a variety of older fields (e.g., management science, construction engineering): from those exclusively focusing on PM to allied disciplines whose application focus was related to the issue of how projects are managed in general (Bredillet, 2008; Narbaev and De Marco, 2011). Currently, about a quarter of the world's economic activity is delivered through programs and projects in the form of gross capital formation and this number tends to be higher in emerging and transition economies than in developed ones (World Bank, 2014). Overall, this figure is expected to grow given the fact that many organizations are transforming from a traditional functional form of management to project-based.

Such transformation to the project-based form of management, on one side, and, the competition in their business environment, on the other, require from organizations achieving a high standard of project performance. This urges the need for Project Managers (PMs) to learn best practices through successful application of strategic planning. Implementation of strategic planning for PM means the development of a customized organization-wide PM standard that is suitable for each organizational environment (Cleland and Ireland, 2006). In other words, it is a mapping of the PM methods and tools into an organization's management system to achieve planned strategic goals.

The success of such PM mapping and competency is measured by organizational maturity in PM. The Oxford Dictionaries defines the term maturity as "the state, fact, or period of being mature" (University of Oxford, 2015) which means brought by some process to completeness of growth, completely worked out, ready for action, fitted by development for any function, action, or state. Organizational maturity in PM, or organizational PM maturity, or often termed as a Project Management Maturity (PMM) is defined by the Project Management Institute (PMI) as "the level of an organization's ability to deliver the desired strategic outcomes in a predictable, controllable, and reliable manner" (PMI, 2013a). To increase such ability various PMM models have been developed. They provide means of identifying necessary steps, tasks, and processes needed to achieve meaningful and measurable results. Consequently, the PMM models often aim at providing a framework for improving an organization's business result by assessing the organization's strengths and weaknesses in PM. Recent extensive research on this topic in Brazil, the United States, Italy and other countries by Archibald and Prado (2014b) has shown the evidence of a relationship between PM maturity and project success. The results of their studies have been frequently published in the *PM World Journal* and can be found in the website www.maturityresearch.com.

Given such a comparatively established background of global PMM studies and applications, this study aims at exploring its status in emerging economies. From this perspective this research focuses on Kazakhstan. The need for application of the best PM practices in Kazakhstan has increased since its independence in 1991 and the research in the field gained an interest in the early 2000s. The country's emerging market economy demanded new forms of management, which in turn gave a stimulus for new avenues in development of PM profession. However, with regard to PMM research in the country, the review by the author revealed little study has been made an attempt to explore the issue. To learn more about general PM development in Kazakhstan the readers may refer to Narbaev (2015) and Tsehovoy et al. (2014). Narbaev (2015) quantitatively explores the dynamics of PM research, knowledge and application while Tsehovoy et al. (2014) conceptually review the history of PM practices and its development prospects in Kazakhstan.

With the purpose of investigating a current PMM status in Kazakhstan and filling a local maturity research gap, this work provides an empirical study on assessing PMM in the country. To achieve this aim, the paper first reviews some prominent maturity models and selects one for this study. Then, a questionnaire survey is conducted involving 22 local PMs which represent a sample data. Third, after statistical analysis of the data, the research results and discussions are provided split into three streams on: revealing respondents' profile, discussing demand for PMs, and determining a PMM level in the country. Finally, the research findings, on the one side, show that organizations in Kazakhstan ensure that each project is run with its own processes and procedures to a minimum specified management standard. On the other side, the research revealed that there is limited consistency or coordination between different projects.

A Review of PM Maturity

Importance of PM Maturity for an Organization

Most organizations, to some extent, embrace PM as the best way to develop and deliver new or improved products, services, and organizational process changes (Cleland and Ireland, 2006). Researchers and practitioners looked for continuous efforts to develop and improve organizations' capability in PM. PMM is just one means that organizations can use in their pursuit of improving their ability to deliver the desired strategic outcomes.

PMM models can be defined as frameworks used to bring a change into an organization with the purpose of shifting it from being less organized, less standardized, and less documented into one achieving higher standards in delivering products and services. Oftentimes, such models are used as a standard to guide improvement efforts of an organization (Cleland and Ireland, 2006). According to Archibald and Prado (2014a) the PMM model is a mechanism to numerically quantify the ability of an organization to manage projects successfully. Also, they assist an organization's overall strategy system which allows an organization measuring the degree to which it is executing PM against the practice of its peers or the best practice in its industry.

The majority of the PMM models use five levels of maturity assessment with Level 1 meaning lower level of maturity (initial) and Level 5 as the highest level of maturity (continuous improvement). In past two decades dozens of research were carried out to assess PMM in various industries and countries. Mullaly (2006), conducting a longitudinal survey of from 280 to 579 organizations internationally, from 1998 to 2003, found an increase in the number of Level 1 organizations and a decrease in the number of organizations with maturity of Level 2 or above. Bay and Skitmore (2006), with the purpose of revealing the PMM level in Indonesia, suggested that PM has matured as a discipline in the country but PM practices had not been used effectively in the country. Grant and Pennypacker (2006), applying a PMM assessment questionnaire to 126 organizations from various industries, found out a maturity level as being 2 out of 5.

Two studies, carries out by the PricewaterhouseCoopers (2012) in 2004 and 2012, respectively, determined that PMM was on the rise. In 2012, they found 19.5% of respondent organizations were at Level 5 (Optimize) and 42.5% at Level 4 (Monitor) compared to 12.7% and 9.2%, respectively, in 2004. Overall, if in 2004, about 78% surveyed organizations were operating on Levels 1, 2, and 3, then, in 2012, 62% of the organizations were operating their business within Level 4 and 5. The results of the extensive research on PMM status in Brazil by Archibald and

Prado (2014b) showed that the average maturity level was 2.60 on a scale from 1 to 5 and only 9.9% of 434 investigated organizations were at the levels of excellence 4 and 5.

PM Maturity Models

To measure PMM, dozens of PMM models have been developed and used in the past two decades which vary from simple to very complex. But these models share the same common goal whose objectives are to identify where PM improvements are required, give clear indications of strengths and weaknesses, lead to significant competitive advantages, and benchmark an organization against its competitors (Archibald and Prado, 2014b). In this work four widely used PMM models are briefly introduced. For a more comprehensive introduction with their strengths and weaknesses the paper refers its readers to the study by Archibald and Prado (2014a). The four prominent maturity models are:

- The Organizational Project Management Maturity Model (OPM3) – the model by PMI (2013b);
- The IPMA-Delta model – the model developed by International Project Management Organization (IPMA, 2015);
- The Kerzner's Project Management Maturity (PMMM) – the maturity model carried out by Kerzner (IIL, 2015);
- The Portfolio, Programme and Project Management Maturity Model (P3M3) – the model developed in accordance with the PRINCE2 (PRojects In Controlled Environments) methodology by Axelos Limited (2013a).

The PMI launched OPM3 development program in 1998 to pursue the recognition of this model as a PMI standard to be used globally. The standard has three interrelated components (PMI, 2013). The first is its knowledge element to explain why organizational PM and maturity are important and how PM can be recognized. The second is the assessment element which presents methods, processes and procedures that an organization can use to self-assess its PMM. And, finally, the improvement element that provides processes needed to perform for uplifting from current maturity to desired one.

The IPMA-Delta model integrates state-of-the-art know-how covering a 360 degree perspective of organizational competence in PM. The standard comprises three domains. It uses the IPMA Competence Baseline to assess the competence of selected individuals (Module I) and the IPMA Project Excellence Model to assess the PM competence and results in selected projects and programs (Module P). Module O is used to assess the organizational competence in managing projects based on the IPMA Organizational Competence Baseline standard (IPMA OCB) (IPMA, 2015). All modules are cross-referenced and interlinked. From such integration it can be noted that this model represents a holistic assessment of the organizational competence in managing projects.

Developed by Kerzner (IIL, 2015), PMMM was released in 1998. To asses PMM with the model, an organization should answer 183 questions. The standard allows measuring how an organization is positioned at six levels and emphasizes benchmarking and makes benchmarking the forth level on its maturity model. The mode describes characteristics at each maturity level, risks and actions required to uplift from one level to another.

P3M3 is a maturity model for PM and provides a framework within which organizations can assess their current performance and plan for improvement when managing and delivering change. It provides three maturity sub-models that can be used separately to focus on specific areas of the business or more generally to help organizations assess the relationship between their portfolios, programs and projects. The P3M3 sub-models are: Portfolio Management, Programme Management, and Project Management Maturity Models (Axelos Limited, 2013b). Therefore, P3M3 recognizes not only PM activities being carried out at the individual program and project level, but also those activities within an organization that provide focus and help sustain effort to build an infrastructure of effective program and project approaches and management practices.

The PM Maturity Model Selection

The PMM models introduced above are considered as ones applicable for managing programs, portfolios, and projects of different size, budget, and from various industries and countries. However, it should be noted that no universal, unique, and/or best model exists. Each model was developed based on specificities of business environment it was created in and then implemented in organizations. Organizations should decide based on their own needs which model to apply.

Given this research focuses on assessing the maturity in managing projects in Kazakhstan rather than programs and portfolios, the research utilizes Project Management Maturity Model (PjM3), which is regarded as a sub-model of its overarching P3M3. In the next section the paper provides more details on this model and explains why it was chosen for this study.

PM Maturity in Kazakhstan

A Brief of PM in Kazakhstan

PM research, knowledge and applications have gained a tremendous recognition over the past 25 years, which were utilized throughout the world and various industries. The catch-up speed in such utilization has been different for various countries. Compared to emerging economies, as Kazakhstan, the developed counterparts have established a comparatively strong background in PM applications. The review of a local PM research revealed that little study had been made an attempt to discover the current status and the dynamics of the local PM in Kazakhstan.

The past ten years has shown a comparative increase in the practice of PM, primarily thanks to efforts of non-governmental organizations. The acknowledged center of excellence in PM in the country, led by Dr. Alexey Tsekhovoy (Global Advisor for *PM World Journal* in Kazakhstan), is the Union of Project Managers (UPM) of Kazakhstan established in 2003. The study by Tsekhovoy et al. (2014) showed that the country formed a productive environment for promotion of PM research and profession. The PM tools and methods, encouraging business to use this technology are included into portfolio of innovation and business development support. The issue of creating a fully-functional Project Management Office (PMO) to manage projects is considered in government structures. One of the future plans is to develop a national standard based on PMI Body of Knowledge (PMBoK).

In his recent research Narbaev (2015) found that, with regard to the diffusion of PM, the majority of PM applications came from oil and gas, processing, construction and heavy

industries. Also, he established three distinct clusters corresponding to the following three domains of the local PM: PM in education and technology, PM in country and regional affairs, and PM in energy sector. Secondly, there was a clear relationship between state-of-the-art of the development of the economy and the level of project orientation of the country. During the years of its independence, tremendous efforts of the business and government of Kazakhstan had been focused on the development of the economy and increasing the well-being of society. In most, such initiatives were realized through programs and projects. Narbaev concluded that the practice of PM and the development of its body of knowledge in Kazakhstan are in its infancy.

PjM3 – Project Management Maturity Model

P3M3 has become a key standard amongst maturity models, providing a framework with which organizations can assess their current performance and put in place improvement plans with measurable outcomes based on industry best practice. As mentioned earlier in the paper, P3M3 is an overarching model containing three individual sub-models as depicted in Figure 1:

- Portfolio Management Maturity Model (PfM3);
- Programme Management Maturity Model (PgM3);
- Project Management Maturity Model (PjM3).

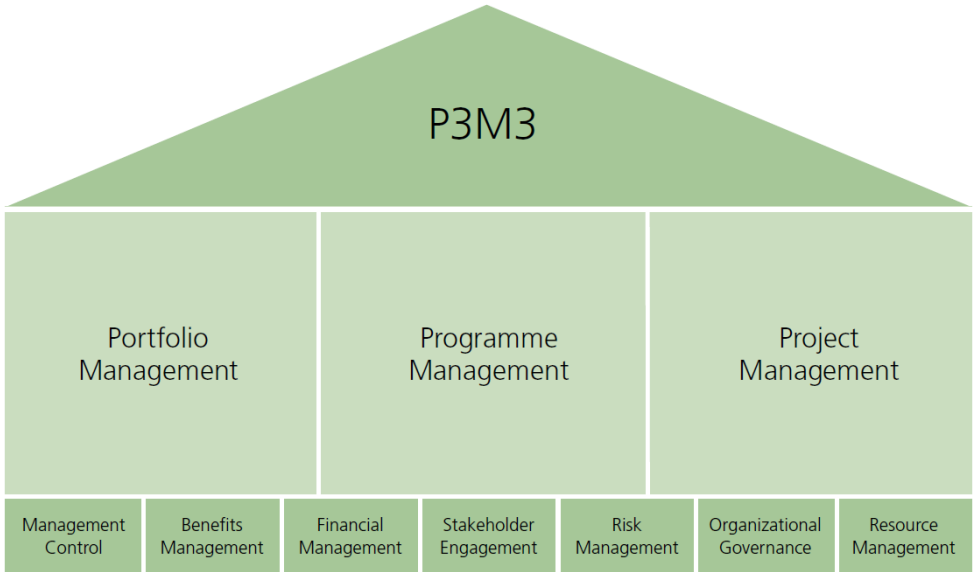

Figure 1 – Overarching P3M3 Structure

Although connected, there are no interdependencies between the three sub-models models, which allows for independent assessment in any of the specific fields. For example, an organization's programme management capabilities may be more evolved than its PM capabilities, so the PM model can be used as a stand-alone tool when looking to improve that area.

P3M3 uses a five-level maturity framework. The descriptions and characteristics of the five maturity levels apply equally to each of the three sub-models given in Figure 1. P3M3 recognizes that organizations may excel at PM without having embraced programme management, or indeed vice versa. Similarly, an organization may be accomplished in portfolio management but immature in programme management. P3M3 therefore allows an organization to assess its effectiveness against any one or more of the sub-models independently. Although an

overall P3M3 maturity rating cannot be given, since each model is independent from the others, gauging the overall maturity of an organization is still possible by undertaking assessments under all three sub-models. The maturity levels with their overall focus question are given in Table 1.

As shown in Figure 1, there are seven process perspectives within P3M3, defining the key characteristics of a mature organization. These are:

- Management Control;
- Benefits Management;
- Financial Management;
- Stakeholder Engagement;
- Risk Management;
- Organizational Governance;
- Resource Management.

Table 1 – PjM3 Maturity Levels and Characteristics

Maturity Level	Overall focus question
Level 1 – awareness of process	Does the organization recognize projects and run them differently from its ongoing business? (Projects may be run informally with no standard process or tracking system)
Level 2 – repeatable process	Does the organization ensure that each project is run with its own processes and procedures to a minimum specified standard? (There may be limited consistency or coordination between projects)
Level 3 – defined process	Does the organization have its own centrally controlled project processes and can individual projects flex within these processes to suit the particular project?
Level 4 – managed process	Does the organization obtain and retain specific measurements on its project management performance and run a quality management organization to better predict future performance?
Level 5 – optimized process	Does the organization undertake continuous process improvement with proactive problem and technology management for projects in order to improve its ability to depict performance over time and optimize processes?

They apply across all three models and at all maturity levels, and each perspective describes the processes and practices that should be deployed at a given level of maturity. As organizations move up through the maturity levels, the quality and effectiveness of the processes and practices increase correspondingly. This incremental nature of process improvement is a key feature of P3M3 (2013b).

The flexibility of P3M3 allows organizations to review all seven process perspectives across all three models – portfolio, programme and project management – but they can also review just one (or several) of the Process Perspectives, whether across all three models or across only one or two of them. This can be useful to gain a better understanding of an organization's overall effectiveness in, for example, Risk Management or Resource Management.

The Questionnaire

The complex questionnaire consists of 3 parts. Part 1 comprises 11 questions aiming at exploring respondents' profile and is given in Appendix A. With 5 questions, Part 2 focuses on revealing demand for PMs (Appendix B) while Part 3, consisting 9 multiple choice questions taken from PjM3 model, assesses PMM. Appendix C provides Part 3 questions, the

organizational process area they are intended to assess, and descriptions of each question. Each of 9 questions has 5 options to choose, from (a) to (e), which correspond to PMM level of 1 to 5, respectively. The complete PjM3 questionnaire, applied in this research, with 9 multiple-choice questions, instructions, and self-assessment tips is available for download from the link given in Axelos Limited (2010).

In this questionnaire, if the overall judgment is the answer (a) then an organization is best characterized as having immature processes and only partial awareness of PM. This means implies that an organization may occasionally deliver individual initiatives that produce excellent results; however, PMs are likely to be working reactively, focusing on solving immediate issues, rather than proactively. For example, schedules and budgets are likely to be exceeded because of a lack of sound estimating techniques like earned value management. If the overall judgment is that a respondent answers (b), (c), (d) or (e), then, this is indicative of maturing processes as shown in Table 1. Levels 3 - 5 are representative of a mature organization that has an organization-wide ability for managing initiatives based on standardized, defined management processes. At the higher levels of maturity (Levels 4 and 5), an organization will have knowledge and quantitative information against which to review performance and evaluate schedules and budgets, ensuring that these are realistic and achievable.

The 9 questions of the PjM3 model (Appendix C) can be interpreted as follows. Question 1 is a general question relating to the level to which the processes have been defined and established within an organization. Answers to Questions 2-8 reveal the current maturity level in the seven process perspective introduced above and given in Figure 1. Question 9 is a cross-check question and the answer to it is to provide an overall organizational capability maturity evaluation in PM. If all of the seven perspectives have been assessed then the capability maturity evaluation is likely to be a mean average of the maturity across those seven perspectives. For example, assume PMM assessment of the seven perspectives resulted in the following level scores: 3, 2, 3, 2, 4, 3, 3. In such a case, the mean average for PMM is 2.85 and therefore the overall PM capability maturity evaluation (Question 9) should ideally be Level 3.

Data Collection

The survey was conducted during May 2015. The author set a partnership with Tarlan PM Group, LLP, a local company providing management consulting, audit, and training services in Kazakhstan. The company sent the PjM3 questionnaire via email to PMs who had been trained by the company irrespective of their core business and a job title. A total of 22 individuals responded in spite of numerous emails made in order to increase the response rate. One of the main reasons identified for the low response rate was that PMs did not find enough time to fill in the questionnaire. To complete Part 3 of the questionnaire (PjM3 model) one spends, on average, about 15-20 minutes and about 25 minutes are needed to respond to all the 3 parts.

Results and Discussions

Profile of Respondents

22 questionnaires were returned. Of these 22 PMs, more than a half indicated they spent more than 50% of their time on managing projects. 64% of the respondents showed they had PM experience of less than or equal to 5 years while the remaining portion indicated the experience in managing projects from 6 to 15 years. None of the respondents had more than 15 years of the

experience. Figure 2 depicts the averages of duration and budget values of projects managed by the respondents. The majority of the respondents showed that the average lifespan of the projects they managed was less than 2 years. With regard to an average budget size, 12 indicated the value of less than 100 thousands USD and none managed large projects worth more than 10 mln. USD.

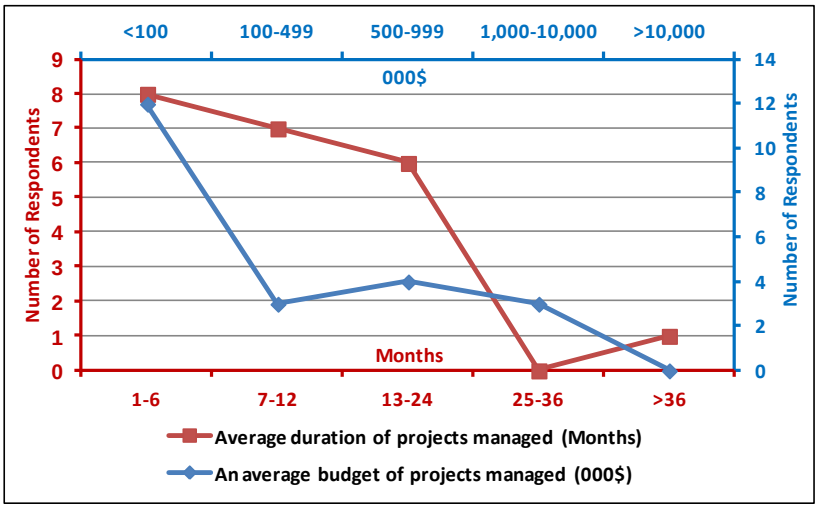

Figure 2 – Average Durations and Budgets of Projrects Managed

The survey also showed that most of the PMs earn up to 2 thousands USD on average with only few respondents being compensated by more than 4 thousands USD. 12 respondents mentioned their highest level of education is Masters degree and 8 – Bachelors. The survey revealed that two age ranges (under 29 and under 39) were represented equally; 10 PMs from each range, implying comparatively younger population of PMs in Kazakhstan. The results on geographical spread of PMs showed that approximately 82% of the respondents work in Astana and Almaty (the country's two major cities) and the Western Kazakhstan's oil&gas fields. 54% of the surveyed indicated their industry sector as being construction and engineering, oil&gas, service (marketing, finance etc.), and education and research. And finally, regarding their organization's size, 9 work for an organization with 50 or less employees, 4 – between 50 and 100, and 7 – more than 100 employees.

Demand for Project Managers

PMs perform multiple tasks related to managing integration, scope, time, cost, human resources, stakeholders, risk and other PM knowledge areas. This implies they play multifunctional roles in PM arena. Due to this PMs need to have satisfactory knowledge in, e.g., strategic and operational planning, sales, marketing, finance and accounting, research and development. According to recent research by UPM in Kazakhstan, education and training of local PMs do not satisfy demand needs of industry (Tsekhovoy, 2014). They estimated that there was a deficit of around 3 thousands specialist in PM needed for project-based organizations and industries of Kazakhstan.

In this research, the results of Part 2 of the questionnaire (Appendix B) revealed that 21 of 22 organizations are heavily based on PM and 16 reported that they have a formal position "Project Manager" in their organizations. With regard to hiring additional project managers, 77% of the organizations indicated they had this need meaning the growing demand for the specialists. Question 4 was given to see if there was a growth in the number of projects delivered in 2015

compared to ones realized in 2014. 8 respondents reported that the number of projects planned for 2015 was the same as the one for 2014. 9 out of 22 denoted an increase in 2015 compared to the number of projects planned in 2014 while 5 organizations marked that the planned number of projects for 2015 decreased compared to the number in 2014. The question, given to find out the minimum requirements set by organizations for hiring PMs, produced mixed results.

PM Maturity and Normality Test

Since the number of respondents in the sample is statistically small, 22, the research applies normality test to determine if the data (the responses on PMM) is well-modeled by a normal distribution and to compute how likely it is for a response underlying the dataset to be normally distributed. Also, it is important to check if there are outliers in the data which usually skew the data. The skewness of data affects a true interpretations of results of a statistical analysis. In other words, it influences the representativeness of samle data to properly represent the true population of PMs in Kazakhstan.

The paper proceeds with two types of tests for checking normality of the sample data: a histogram of the data and a normal probability plot. They are regarded as descritpive tools for checking data normality. The first test is a construction of a histogram of the sample data which shows a frequency of responses accross maturity levels. Their distribution should be bell-shaped and resemble a normal distribution. Figure 3 (Part a) presents the result of this descriptive procedure. The histogram shows the data distribution is well bell-shaped which implies normality of the research small data.

The second tool is a normal probability plot which is built by regressing the data against the quantiles of a normal distribution with the same mean and variance as the sample. Its main purpose to identify existence of lack of fit to the regression line which suggests a departure from normality. The results of this test shows that the coefficient of determination (R^2) between the maturity levels and normal quantiles shows a measure of the goodness of fit. It indicates how well PMM data are modeled by a normal distribution. As shown in the normal probability plot (Part b of Figure 3) the points plotted in the normal quantiles (z-values) fall approximately on a straight line, marking high positive correlation. The plot shows that the data are normal and R^2 is considerably high, 0.98 out of maximum ideal 1.00, implying a good fit of PMM data to the ideal straight line. Also, the plot shows that there is no outliers in the data.

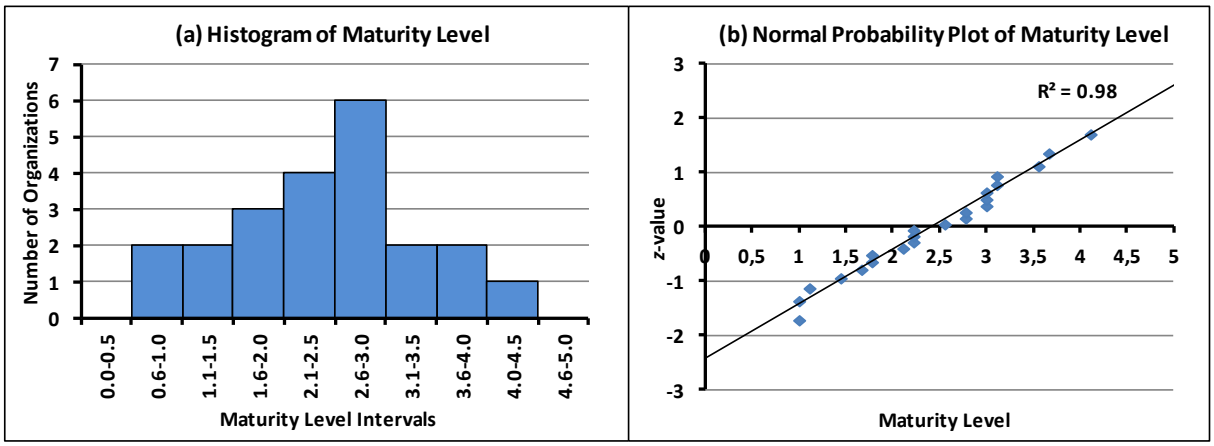

Figure 3 – Two Tests of Normality of PMM Data

Table 2 summarizes the results of current PMM of the respondent organizations. The overall mean maturity level is 2.42 (i.e., repeatable processes according to PjM3) which is an indication of a maturing PM processes in the organizations. In general it is noted that PMM is moving from Level 2 to Level 3. This shows that the organizations ensure that each project is run with its own processes and procedures to a minimum specified management standard set in the organizations. However, it also implies that there may be limited consistency or coordination between different projects. As PMM moves to Level 3 it also means that the organizations strive for having their own centrally controlled PM processes and all their individual projects would flex within these processes.

The benefit of PjM3 is that it also allows cross checking the answer to Question 9 with the mean score of the seven perspectives, i.e. the mean of scores of Questions 2 to 8. Question 9 provides an overall organizational capability maturity and ideally its score should be equal or close to the mean score of the answers to Questions 2 to 8. The score for Question 9 is 2.32 and the mean score for the seven perspectives is 2.44. This suggests the assumption, that if all of the seven perspectives have been assessed without bias, then the capability maturity evaluation (Question 9) is likely to be a mean average of the maturity across the seven perspectives, can be justified. As recommended by PjM3 guide and instructions Axelos Limited (2010) a further cross-check of the score of Question 9 is performed with the result of Question 1. If Question 1 results in a level that is lower than the level to Question 9, then it is likely that there is a high degree of variation in the maturity for different perspectives. In this research it is 2.36 against 2.32 which indicate a low degree of variation in the maturity levels among the seven perspectives.

Table 2 – Summary of PMM Assessment Results*

Statistics	PjM3 Question Number and its Focus Area									PMM Level
	1	2	3	4	5	6	7	8	9	
	Org. Description	Mng. control	Benefits Mng.	Financial Mng.	Stakeholder Mng.	Risk Mng.	Org. Governance	Res Mng.	Overall org. capability maturity	
Mean	2.36	2.23	2.45	2.73	2.73	2.32	2.41	2.23	2.32	**2.42**
Standard deviation	1.26	1.19	1.06	1.42	1.39	1.25	0.96	1.15	1.17	**0.88**
Median	2.00	2.00	2.50	3.00	2.50	2.00	2.00	2.00	2.00	**2.39**
Mode	2	2	3	3	2	1	2	2	3	**-**
Min value	1	1	1	1	1	1	1	1	1	**1.00**
Max value	5	5	4	5	5	5	4	5	5	**4.11**
Interquartile range	1.75	2.00	1.00	2.75	2.00	2.00	1.00	2.00	2.00	**1.22**

**Org. – Organization, Mng. – Management.*

With regard to individual process perspectives, Financial Management and Stakeholder Management processes tend to be comparatively more mature than the other process perspectives. Management Control and Resources Management in the organizations were shown as being less mature. But in general it is noted that the differences in individual process maturity levels are not high as the scores of all the seven perspectives fall between Level 2 to 3. The closeness of the mean of PMM to its median, 2.42 against 2.39, suggests the normality of the data (Table 2). The normality of the data was also tested in the previous section. A short

interquartile range of 1.22 implies the variation in the data is low as shown also by the standard deviation. Maximum values of PMM across process perspectives shows that there were a few respondents who indicated maturity level of 4 or 5 for individual management processes.

Conclusion

The past ten years has shown an increase in PM maturity research and practice in various developed and developing countries and their results were well-documented and disseminated. Given such a worldwide diffusion of PMM, there was little evidence or research aimed at studying its status in Kazakhstan. With the purpose of exploring a local PM maturity and filling the research gap, this work provided an empirical study on assessing the maturity in the country.

To achieve this purpose, the paper first provided a review of the four prominent PMM models upon which PjM3 was selected for the application in Kazakhstan. Second, a complex questionnaire, consisting of three parts, was distributed among PMs representing different industries in the country. Third, after statistical analysis of the data, the research results were split into three streams focusing on respondents' profile, demand for PMs, and the maturity level, respectively.

Based on the results of the PjM3 questionnaire with the mean maturity level of 2.42 out of 5, the study found out that PM tools and methods have not yet been used effectively in Kazakhstan. PMM in Kazakhstani organizations is gradually moving from Level 2 to Level 3. This shows that the organizations ensure that each project is run with its own processes and procedures to a minimum specified management standard set in the organizations. However, it also indicated that there was limited consistency or coordination between different projects. Finally, the findings suggested that, as the maturity moves to Level 3, the organizations strived for having their own centrally controlled PM processes where all their individual projects would flex. All in all, the findings of the study add value to the existing PM body of knowledge in Kazakhstan and are a background asset to be used in facilitating the projectification of organizations in Kazakhstan.

All in all, as organizations strive to identify competitive advantages in their markets, and leverage them through their management system, PMM models, designed to assess project performance and identify opportunities for improvement, become increasingly important. However, it should be noted, that reaching a higher level of PMM is an effort that requires from senior management significant investment and commitment. It is then wise for every organization not to set a goal to reach the highest PMM level but, rather, target the level that would be optimal and in synchrony with both its external business and internal management environments. Provided this consideration, the author also found that PMM models serve as a diagnostic tool to measure overall health of an organization in utilizing PM best practices.

Acknowledgement

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Appendix A – The Questionnaire Part 1 (Profile of a Respondent)

1. **What percent of your working time do you spend on managing projects (in %)?**
   - 1-25
   - 26-50
   - 51-75
   - 76-100

2. **What is your Project Management experience (in years)?**
   - 0-5
   - 6-10
   - 11-15
   - 16-20
   - 20

3. **What is an average budget of projects you managed (in thousands of USD)?**
   - < 100
   - 100 – 499
   - 500 – 999
   - 1 000 – 10 000
   - >10 000

4. **What is an average duration of projects you managed (in months)?**
   - 1 – 6
   - 7 – 12
   - 13 – 24
   - 25 – 36
   - > 36

5. **What is a range of your compensation (in USD)?**
   - < 1000
   - 1000 – 1999
   - 2000 – 2999
   - 3000 – 3999
   - 4000 – 4999
   - ≥ 5000

6. **What is your highest level of education?**
   - high school
   - bachelor
   - master
   - PhD

7. **What is your age range?**
   - 20-29
   - 30-39
   - 40-49
   - 50-59
   - ≥ 60

8. **What is your sex?**
   - Male
   - Female

9. **What is industry sector of your organization?**
   - Consulting / training

- Education / research
- Energy
- Engineering and construction
- Government / public
- Healthcare and culture
- IT and software development
- Manufacturing
- Military / defense
- Service (marketing, finance etc.)
- Trade and catering
- Transportation and communication
- Utilities
- Other (please, specify)

10. What is a geographical region of your organization?

- City of Astana
- City of Almaty
- Akmola
- Aktobe
- Almaty
- Atyrau
- East-Kazakhstan
- Karaganda
- Kostanay
- Kyzylorda
- Mangistau
- Northern-Kazakhstan
- Pavlodar
- Southern-Kazakhstan
- Western-Kazakhstan
- Zhambyl

11. What is the size of your organization in terms of a number of employees?

- ≤ 50
- 51 – 100
- 101 – 500
- 501 – 1000
- > 1000

Appendix B – The Questionnaire Part 2 (Demand for Specialists in Project Management)

1. **Does your organization run project management activities?**
   - Yes
   - No

2. **Does your organization have a formal position "Project Manager"?**
   - Yes
   - No

3. **Does your organization have needs in hiring more Project Managers?**
   - Yes
   - No

4. **Does the demand for projects in 2015 more than the one in 2014?**
   - Number of projects planned for 2015 is much higher than the one for 2014
   - Number of projects planned for 2015 is slightly higher than the one for 2014
   - Number of projects planned for 2015 is the same as the one for 2014
   - Number of projects planned for 2015 is less than the one for 2014

5. **What are minimum requirements your organization sets for hiring Project Managers (combinations are possible, choose no more than 2)?**
   - Bachelors degree
   - Masters degree
   - PhD
   - An academic degree in Project Management
   - An academic degree in economics and social sciences
   - An academic degree in engineering and technical sciences
   - An academic degree in information technologies
   - A professional certification in Project Management
   - Other (please, specify)

6. **Your email address (optional):**

Appendix C – The Questionnaire Part 3 (The PjM3 Assessment)*

Questions	Process area to assess:	Description
Question 1: Our organization can be best characterized as having:	Overall organization description	A general question relating to the level to which the processes have been defined and established within the organization. Higher levels of process maturity being demonstrated through the extent to which the processes are quantitatively managed and whether such management information is used to optimize the processes.
Question 2: Our management control is best described by:	Management Control	This covers the internal controls of the initiative and how its direction of travel is maintained throughout its life cycle, with appropriate break points to enable it to be stopped or redirected by a controlling body if necessary.
Question 3: Our benefits management is best described by:	Benefits Management	Benefits management is the process that ensures that the desired business change outcomes have been clearly defined, are measurable and are ultimately realized through a structured approach and with full organizational ownership.
Question 4: Our financial management is best described by:	Financial Management	Finance is an essential resource that should be a key focus for initiating and controlling initiatives. Financial management ensures that the likely costs of the initiative are captured and evaluated within a formal business case and that costs are categorized and managed over the investment life cycle.
Question 5: Our approach to stakeholder engagement is best described by:	Stakeholder Engagement	Stakeholders are key to the success of any initiative. Stakeholders at different levels, both within and outside the organization, will need to be analyzed and engaged with effectively in order to achieve objectives in terms of support and engagement. Stakeholder engagement includes communications planning, the effective identification and use of different communications channels, and techniques to enable objectives to be achieved.
Question 6: Our risk management is best described by:	Risk Management	This views the way in which the organization manages threats to, and opportunities presented by, the initiative. Risk management maintains a balance of focus on threats and opportunities, with appropriate management actions to minimize or eliminate the likelihood of any identified threat occurring, or to minimize its impact if it does occur, and to maximize opportunities. It will look at a variety of risk types that affect the initiative, both internal and external, and will focus on tracking the triggers that create risks.
Question 7: We deliver organizational governance by:	Organizational Governance	This looks at how the delivery of initiatives is aligned to the strategic direction of the organization. It considers how start-up and closure controls are applied to initiatives and how alignment is maintained during an initiative's life cycle. This differs from management control, which views how control of initiatives is maintained internally, as this perspective looks at how external factors that impact on initiatives are controlled (where possible, or mitigated if not) and used to maximize the final result. Effective sponsorship should enable this.
Question 8: Our resource management is best described by:	Resource Management	Resource management covers management of all types of resources required for delivery. These include human resources, buildings, equipment, supplies, information, tools and supporting teams. A key element of resource management is the process for acquiring resources and how supply chains are utilized to maximize effective use of resources. There will be evidence of capacity planning and prioritization to enable effective resource management. This will also include performance management and

		exploitation of opportunities for greater utilization. Resource capacity considerations will be extended to the capacity of the operational groups to resource the implications of change.
Question 9:	Overall organizational capability maturity	If all of the Perspectives have been assessed within a particular model (PfM3, PgM3, PjM3) then the capability maturity evaluation is likely to be a mean average of the maturity across the seven perspectives. For example, the above assessment of Project Management resulted in the following Level scores: 3,2,3,2,4,3,4. The mean average for the series is 3 and therefore the overall project management capability maturity evaluation would be Level 3.

**The PjM3 with its questionnaire, self-assessment tips and instructions is available for download from the link given in Axelos Limited (2010).*

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